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First Described Renesting Attempt by an American Bittern

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ABSTRACT.—Most life history traits of the American Bittern (*Botaurus lentiginosus*) have not been studied and are poorly understood. The ability of the American Bittern to renest has not been confirmed previously. A second nesting attempt by an American Bittern was observed on Agassiz National Wildlife Refuge on 8 July 1996. This information provides insight into American Bittern fecundity by showing that ad-

ditional reproductive capability exists when nests are destroyed by predation or weather related events. Future studies of nesting bitterns will need to consider renesting when estimating density of nesting females. Received 18 March 1999, accepted 22 Dec. 1999.

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The American Bittern (*Botaurus lentiginosus*) is the most widely distributed wading bird in North America, breeding as far north as central Canada and wintering as far south as Central America (Bent 1926). Breeding Bird Survey results indicate a decline of 2.2%/year for American Bitterns survey-wide from 1966–1996 (Sauer et al. 1997). The American Bittern is listed as a migratory nongame bird of special concern by the U.S. Fish and Wildlife Service (1995) and is Blue-Listed by the National Audubon Society (Tate 1986).

The paucity of knowledge regarding American Bittern life history has inhibited the implementation of effective management techniques to reverse the downward trend in American Bittern populations. In 1994, we initiated a study to investigate these life history traits. Phase II of the project (1996–1997) focused on estimating home-range size and habitat use by radio telemetry. Renesting by American Bitterns has been suspected (Svedarsky 1992), although not documented. We describe the renesting activities of a radio-marked American Bittern and provide nest site information.

STUDY AREA AND METHODS

Our study area, Agassiz National Wildlife Refuge (NWR; 48° 20' N, 95° 55' W), is located 17.7 km east of Holt, Minnesota, and contains 24,000 ha, including approximately 16,035 ha of restored wetlands. Most of the 18 impoundments are dominated by emergent vegetation consisting of cattail (*Typha* spp.), bulrush (*Scirpus* spp.), giant reed grass (*Phragmites australis*), sedge (*Carex* spp.), and willow (*Salix* spp.). Water depths rarely exceed 2 m and average approximately 1 m during summer. The population of American Bitterns on Agassiz NWR has been estimated at 384 ± 72 (L. Bennett, unpubl. data).

Mist nets and dip nets were used to capture female American Bitterns (Brininger 1996). Captured birds were fitted with a necklace style radio package modified after Amstrup (1980). Nests of radio-marked females were located by following the radio signal (Kenward 1987) and visually observing the female on the nest. Nest site characteristics were measured with a meter stick and included nest width and height, water depth, and height of tallest vegetation (from the ground) within 1 m of the nest, similar to methods described by S. Maxson (unpubl. data).

RESULTS AND DISCUSSION

The nest of a radio-marked American Bittern containing 3 eggs was located on 2 June 1996 in a dense stand of sandbar willow (*Salix exigua*) and giant reed grass. The nest was constructed of residual giant reed grass and measured 29 cm wide and 6 cm tall. The water depth at the nest site was 35 cm and the height of tallest vegetation within 1 m of the nest was 2.25 m (sandbar willow). The female was visually observed incubating the nest on 6 and 7 June but was not flushed; consequently, total number of eggs laid could not be determined. Radio telemetry and visual observation indicated she incubated the eggs until at least 11 June. We discovered at 11:00 CST on 12 June

that the nest had been destroyed by a predator. No eggs or egg shells remained in or around the nest. On 8 July, the same radio-marked female was observed incubating a second nest containing 2 eggs. The second nest was located 3 km from the first, was constructed of sedge, and measured 29 cm wide and 4 cm tall. Water depth at the nest site was 35 cm and the height of the tallest vegetation within 1 m of the nest was 1.16 m (sedge). At 10:00 on 17 July, we discovered that a predator had removed one egg from the nest. The radio-marked female was not located at the nest site again. Because of a weak radio transmitter signal, the movements of the radio-marked female following the destruction of the second nest were not known.

These observations confirm the renesting ability of American Bitterns and suggest bitterns possess additional reproductive capability when nests are destroyed by predation or weather related events. This information, along with other life history traits documented by this study (Azure 1998, Brininger 1996), may facilitate further research. Currently, the most effective method of capturing female American Bitterns is to cover them with a dip net when they are on a nest. Renesting American bitterns offer additional opportunities for capture and should be considered when estimating density of nesting females.

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Helping Behavior within Sapsuckers (*Sphyrapicus* spp.)

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ABSTRACT.—I documented interspecific and intraspecific helping behavior (more than two adults feeding young at a nest) within sapsuckers of the genus *Sphyrapicus*. Of 120 nests, 97 belonged to Red-breasted (*Sphyrapicus ruber*), Red-naped (*Sphyrapicus nuchalis*), or hybrid (Red-breasted × Red-naped) sapsuckers, and 23 to Williamson's Sapsuckers (*Sphyrapicus thyroideus*). Interspecific helping behavior was observed at two nests (1 with a Red-breasted × Red-naped and hybrid female, 1 with Red-breasted × Red-breasted and Williamson's male) and intraspecific helping behavior (Red-breasted male) was observed at one nest. Given the rarity of helping behavior observed in these species a functional advantage is unlikely; individuals that helped might simply have been responding to a feeding stimulus. Received 9 Aug. 1999, accepted 23 Dec. 1999.

Helping occurs when additional birds help the parents care for their offspring (Emlen and Vehrencamp 1983). Intraspecific helping behavior in birds is widespread taxonomically but uncommon, occurring in just 2.4% of bird species (Emlen and Vehrencamp 1983, Stacey and Koenig 1990). In addition to intraspecific helping behavior, interspecific helping behavior has been documented in birds. Taxonomically the distribution of interspecific helping behavior is widespread but rare (reviewed by Shy 1982). In contrast, intraspecific helping behavior occurs frequently in some populations such as Florida Scrub Jays (*Aphelocoma coerulescens*), Acorn Woodpeckers (*Melaner-*

pes formicivorus), and Red-cockaded Woodpeckers (*Picoides borealis*) (Koenig et al. 1984, Woolfenden and Fitzpatrick 1984, Walters, 1990). In other species, such as Bobolinks (*Dolichonyx oryzivorus*), Brewers Sparrows (*Spizella breweri*), Chipping Sparrows (*Spizella passerina*), and Hooded Warblers (*Wilsonia citrina*), sightings of intraspecific helping occur only rarely (Beason and Trout 1984, Middleton and Prescott 1989, Tarof and Stutchbury 1996, Gill and Krannitz 1997).

It has been suggested that interspecific helping behavior in birds provides evidence that intraspecific helping behavior evolved simply as a consequence of a response to a feeding stimulus (i.e., the begging calls of nestlings; Jamieson and Craig 1987). However, this does not necessarily explain its current functional significance (Ligon and Stacey 1991).

I describe observations of intra- and interspecific helping behavior within the genus *Sphyrapicus*. This genus includes Williamson's Sapsucker (*Sphyrapicus thyroideus*), Red-breasted Sapsucker (*S. ruber*), Red-naped Sapsucker (*S. nuchalis*), and Yellow-bellied Sapsucker (*S. varius*). Rare cases of interspecific helping behavior have been documented between other species in the family Picidae including Hairy Woodpeckers (*Picoides villosus*) feeding Downy Woodpeckers (*Picoides pubescens*), and Three-toed Woodpeckers (*Picoides tridactylus*) feeding Black-backed Woodpeckers (*Picoides arctus*; Davis 1973, Hickery in Shy 1982). This is the first time that helping has been documented between Williamson's and Red-breasted sapsuckers

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